

Summary and Evaluation of Alternatives

This section summarizes the evaluation of remedial alternatives for each of the Inboard Area sites recommended for further action. As described in Section 2.1.2, the Inboard Area sites are divided into three groups: Army BRAC sites, other Army BRAC Environmental Considerations, and HWRP Issues. The process used in this ROD/RAP to evaluate alternatives for each of these groups is summarized below.

Alternatives for the Inboard Army BRAC sites were first developed and evaluated in the Inboard Area Sites FFS (USACE, 2001). The alternatives for Inboard Area sites are redefined and re-evaluated in this ROD/RAP. The three alternatives evaluated in this ROD/RAP for the Army BRAC Inboard Area sites are listed below:

- Alternative 1, No Further Action
- Alternative 2, Excavation and Offsite Disposal
- Alternative 3, Manage In-Situ, with Monitoring and Maintenance, for Army BRAC sites

The Army BRAC sites evaluated for remedial action are listed in Table 1-1.

Section 2.1 presents alternatives for the Army BRAC Environmental Considerations (Archive Search Report Sties and GSA/BRAC Stockpiled Soil). Further evaluation of the selected alternatives is not required in this ROD/RAP.

Alternatives for the HWRP issues of Inboard Area-Wide DDTs and PAHs near the runway were first developed and discussed in the Inboard Area Sites (USACE, 2001). The alternatives are redefined and re-evaluated in this ROD/RAP. The two alternatives evaluated in this ROD/RAP for the Inboard Area-Wide DDTs and PAHs near the runway are listed below:

- Alternative 1, No Further Action
- Alternative 4, Manage Onsite, with Monitoring and Maintenance, for Army Civil Works Issues

A single alternative for addressing lead-based paint through the HWRP was presented in Section 2.1. Further evaluation of the selected alternative for lead-based paint is not required in this ROD/RAP.

All of the remedial alternatives were developed by assembling remedial technologies, compatible with a wetland end-use scenario, into treatment options that met RAOs. In some cases, specific aspects of the HWRP were also considered in identifying, evaluating, and selecting remedial alternatives.

Remedial alternatives were not developed or evaluated for Army BRAC sites that do not require remedial action. Army BRAC sites that do not require remedial action include sites for which the FFS determined no action is required or those where no COCs are identified in the ROD/RAP process. The Army BRAC sites that do not require further action are listed below:

- **Building 20:** FFS determined no remedial action required
- **Building 84/90:** FFS determined no remedial action required
- **PDD Spoil Pile E:** no COCs identified in ROD/RAP process
- **PDD Spoil Pile H:** FFS determined no remedial action required
- **East Levee Generator Pad:** FFS determined no remedial action required
- **Northwest Runway Area:** risk management evaluation determined no remedial action required
- **Tarmac East of Outparcel A-5:** FFS determined no remedial action required
- **Revetments, 5, 8, 9, 10, 15, 17, 20, 24, 27, and 28:** FFS determined no remedial action required
- **Revetment 18/Building 15:** FFS determined no remedial action required

The sections below provide a description of Alternatives 1 through 4, and select the remedial alternative for the Army BRAC Program sites that require remedial action and the HWRP Inboard Area-Wide DDTs and PAHs near the runway. A summary of the rationale for adopting the selected alternatives is also provided.

2.4.1 Remedial Alternatives

The four remedial alternatives developed for use and evaluation in this ROD/RAP are described in the following text.

2.4.1.1 Alternative 1, No Further Action

In accordance with the NCP (40 CFR 300), CERCLA guidance (EPA, 1988a), and under Chapter 6.8 of Division 20 of the California Health and Safety Code, a No Further Action alternative was developed for evaluation at each site. Under this alternative, no further action would be taken and there would be no restrictions placed on the use of the site.

The No Further Action Alternative reflects leaving a site in its current condition. In the analysis presented below, it is intended that this option be included only as a comparison to other alternatives. This alternative will not be selected for any of the sites requiring remedial action because it would not meet RAOs.

2.4.1.2 Alternative 2, Excavation and Offsite Disposal

Under this alternative, contaminated soils above action goals will be excavated and disposed of at an appropriate offsite landfill facility. Table 2.1-2 lists the action goals for sites that have been determined to require excavation. For the Inboard Area sites, excavation will continue until the action goals have been achieved. Excavated sites that are shown to meet the action goals shall be considered fully remediated and there would be no institutional controls placed on the use of the site. Excavation activities within the Inboard Area will need to be completed before levee breach.

Remedial Goals

Alternative 2 serves three purposes:

- To prevent human or ecological contact with contaminated soil/sediment
- To prevent migration of contamination
- To minimize long-term impact to habitat

Primary Action

Implementation of this alternative would consist of excavation and offsite disposal of site soils, as well as sampling to confirm removal of contaminated soils from the affected site. The following sections describe the primary activities and general design considerations for Alternative 2:

- **Equipment mobilization and establishment of staging areas and access to the sites targeted for remedial action.** Staging areas would be established on the airfield inboard property for heavy equipment, decontamination, and, as necessary, soil transfer from off-road trucks to highway transport trucks, as necessary.
- **Preconstruction biological surveying.** No sensitive species are known or suspected to be present at the Inboard Area sites so preconstruction biological surveying is not required.
- **Excavation of site material.** Contaminated material would be excavated using standard construction equipment. Excavation would continue until RAOs are achieved to ensure protection of human health and the environment. Confirmation samples would be collected to verify that RAOs are met (see below).
- **Disposal of site material.** Excavated materials would need to be classified and disposed of in a suitable offsite location. Waste profiling would be required to determine classification of the waste. Soil would then be disposed of in an approved landfill, based on waste classification.
- **Confirmation sampling.** Confirmation samples would be collected to verify that action goals are met. These samples could be collected as predesign investigation samples that would be collected before excavation to determine the extent of the excavation geometry. Alternatively, confirmation samples could be collected following excavation activities from the bottom and sidewalls of the excavation. Confirmation sampling will be conducted as necessary on a site-by-site basis. Once the confirmation sampling shows that all remaining contaminant concentrations have been reduced to below action goals, the site may be backfilled.
- **Backfill Operations.** Sites will be backfilled only as necessary to eliminate unsafe conditions using clean onsite soil or re-handled dredged material.

2.4.1.3 Alternative 3, Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites

Under this alternative, a performance criteria of 3 feet of stable cover is established for a site where residual concentrations exceed the action goals identified in Table 2.1-2. The purpose

of the performance criteria for this alternative is to eliminate or significantly reduce any potential risk associated with residual concentrations of contaminants by preventing exposure of future wetland receptors to contaminated site soils. Alternative 3 is the final remedy for sites where residual concentrations of contaminants are greater than the action goals listed in Table 2.1-2 and the performance criteria can be met.

Alternative 3 is only considered for sites being addressed by the Army BRAC program. This alternative was not considered for Inboard Area-Wide DDTs or PAHs near the runway. For sites where this alternative is selected, the remedy will be implemented by ensuring that 3 feet of stable cover, or equivalent, are provided. This performance criteria of 3 feet of stable cover, or its equivalent, shall be achieved as of the date of the breach of the outboard levee and restoration of tidal action to the site. The HWRP design and geomorphic and scour analyses will be used to determine whether performance criteria can be achieved. If affected soils remain in areas of the wetland restoration project that are subject to tidal scour so that the performance criteria cannot be achieved, then such affected soils shall be excavated and disposed of offsite in accordance with Alternative 2.

The Army shall ensure that the HWRP, including implementation of its plan for monitoring and adaptive management, will achieve and maintain the 3 feet of stable cover, or equivalent, at each site where Alternative 3 is selected. The duration of the HWRP obligation shall extend to a date 13 years following the date of levee breach and reintroduction of tidal influence to the Inboard Area. This duration is the limit of the authorized implementation period of the HWRP and after, in accordance with federal law. Throughout the period of implementation of the HWRP and after, the Army and the property owner shall ensure that the remedy for these sites is maintained to the extent necessary to protect human health and the environment.

For sites where this alternative is selected, institutional controls in the form of land use restrictions, and monitoring, will be required where contamination remains at levels above the action goals.

Institutional controls in the form of land use restrictions will be required where contamination remains above the action goals. The institutional controls include:

- Grading, excavation, and intrusive activities must be conducted pursuant to a plan approved by the State.
- The property shall not be used for residences, schools, daycare facilities, hospitals, hospices, or other similar sensitive uses.

State and federal agencies must have access to the property. The property owner shall provide access, on an as-needed basis, minimizing any interference with the implementation, operation, or maintenance of the ecosystem restoration project. Appropriate federal and state agencies, and their officers, agents, employees, contractors, and subcontractors will have the right, upon reasonable notice, to enter the property where it is necessary to carry out response actions or other activities consistent with the purposes of this ROD/RAP. Appropriate federal and state agencies and their officers, agents, employees, contractors, and subcontractors will also have the right, upon reasonable notice, to enter adjoining property where it is necessary to carry out response actions or other activities consistent with the purposes of this ROD/RAP.

2.4.1.4 Alternative 4, Manage Onsite, with Monitoring and Maintenance, for Army Civil Works Issues

Under this alternative, a performance criteria of 3 feet of stable cover, or equivalent measures, as agreed to by the Army and the State, is established for the areas specified below. The primary purpose of the performance criteria for this alternative is to eliminate or significantly reduce any potential risks associated with residual concentrations of Inboard Area-Wide DDTs and PAHs in soils adjacent to the runway by preventing exposure of future wetland receptors to site soils contaminated with these compounds. This alternative applies only to sites being addressed by the Army Civil Works Program; it was not considered for BRAC sites listed in Table 1-1.

Sampling indicates that all surface soils in the Inboard Area are affected by DDTs and that soils adjacent to the southern end of the runway are affected by PAHs. The HWRP design and geomorphic and scour analyses will be used to determine whether the performance criteria can be achieved for those portions of the Inboard Area where residual DDTs and PAHs in site soils adjacent to the runway exceed the action goals for DDTs and/or PAHs identified in Table 2.1-2. Where residual contamination of site soils exceed the action goals for DDTs and/or PAHs, and the performance criteria cannot be met, the HWRP will, with the concurrence of the State, excavate some or all of the impacted soils and manage them onsite. Following any such excavation, the HWRP shall address the residual contamination of site soils exceeding the action goals for DDTs and/or PAHs (Table 2.1-2), including both those soils that have been excavated for onsite management and those soils left in place, by implementing 3 feet of stable cover or equivalent measures. The performance criteria shall consist of placement of 3 feet of stable cover of dredged material, or an appropriate alternative action providing a level of protection equivalent to 3 feet of stable cover, as agreed to between the Army and the RWQCB. This performance criteria of 3 feet of stable cover, or its equivalent, shall be achieved as of the date of the breach of the outboard levee and restoration of tidal action to the site, and shall be maintained throughout the life of the wetland.

The Army Civil Works Program shall ensure, through both construction and implementation of its plan for monitoring and adaptive management, that the HWRP will achieve and maintain the performance criteria of 3 feet of stable cover or its equivalent. The duration of this HWRP obligation shall extend to a date 13 years following the date of levee breach and reintroduction of tidal influence to the Inboard Area. This duration is the limit of the authorized implementation period of the HWRP, in accordance with federal law. Thereafter, the property owner shall ensure that the performance criteria for the Inboard Area-Wide DDTs and PAHs in soils adjacent to the runway are maintained to the extent necessary to protect human health and the environment. The Army and the State have determined that the HWRP is likely to be an appropriate and effective mechanism for implementing this alternative.

Institutional controls in the form of land-use restrictions and monitoring will be required where contaminant concentrations of Inboard Area-Wide DDTs and/or PAHs in soils adjacent to the runway remain at levels above the action goals in Table 2.1-2. The institutional controls include:

- Grading, excavation, and intrusive activities must be conducted pursuant to a State-approved plan.
- The property shall not be used for residences, schools, daycare facilities, hospitals, hospices, or other similar sensitive uses.

State and federal agencies must have access to the property. The property owner shall provide access, on an as-needed basis, minimizing any interference with the implementation, operation, or maintenance of the ecosystem restoration project. Appropriate federal and state agencies and their officers, agents, employees, contractors, and subcontractors will have the right, upon reasonable notice, to enter the property where it is necessary to carry out response actions or other activities consistent with the purposes of this ROD/RAP. Appropriate federal and state agencies and their officers, agents, employees, contractors, and subcontractors will also have the right, upon reasonable notice, to enter adjoining property where it is necessary to carry out response actions or other activities consistent with the purposes of this ROD/RAP.

2.4.2 Evaluation of Alternatives

The remedial alternatives were evaluated based on the nine criteria set forth in the NCP. These evaluation criteria served as the basis for conducting the detailed analysis during the FFS, revising the analysis during the ROD/RAP and, subsequently, selecting remedial actions appropriate for the future wetland-use scenario.

The first two criteria, overall protection of human health and the environment and compliance with ARARs, are threshold criteria. Alternatives that do not meet the threshold criteria are eliminated from further evaluation. The remedy selection is based primarily on the next five criteria:

- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, and volume
- Short-term effectiveness
- Implementability
- Cost

The remaining criteria, state (support agency) acceptance and community acceptance, will be evaluated following receipt of comments on this ROD/RAP.

The list below analyzes the alternatives against the nine criteria. Alternative 1 is carried forward only as a comparison to other alternatives. This alternative will not be selected for any of the sites requiring remedial action because it would not meet RAOs.

1. Overall Protection of Human Health and the Environment

Army BRAC Sites (Alternatives 1, 2, and 3)

Where remedial actions are necessary, Alternative 1 does not meet this criterion because it has no remedial activity to protect human health or the environment from levels of contamination above action goals. Alternatives 2 and 3 protect human health and the environment by removing the contamination above action goals at each site, or by preventing exposure of human and ecological receptors to contamination above action goals.

HWRP Issues (Alternatives 1 and 4)

Where remedial actions are necessary, Alternative 1 does not meet this criterion because it has no remedial activity to protect human health or the environment from levels of contamination above action goals. Alternative 4 protects human health and the environment by preventing exposure of human and ecological receptors to contamination above action goals.

2. Compliance with Applicable Requirements

Army BRAC Sites (Alternatives 1, 2, and 3)

Alternatives 2 and 3 are expected to satisfy this criterion because they will meet their location- and action-specific ARARs. While there are no chemical-specific ARARs for residual contamination at HAAF, chemical-specific TBC criteria are proposed for the site. Alternative 2 will meet the criteria by removing contamination above action goals. The performance criteria specified for Alternative 3 will meet chemical-specific TBC criteria when 3 feet of stable cover material are provided. Where remedial actions are necessary, Alternative 1 does not meet this criterion.

HWRP Issues (Alternatives 1 and 4)

Alternative 4 is expected to satisfy this criterion because it will meet the location- and action-specific ARARs. While there are no chemical-specific ARARs for residual contamination at HAAF, chemical-specific TBC criteria are proposed for the site. The performance criteria specified for Alternative 4 will meet chemical-specific TBC criteria when 3 feet of stable cover material are provided. Where remedial actions are necessary, Alternative 1 does not meet this criterion.

3. Long-Term Effectiveness and Permanence

Army BRAC Sites (Alternatives 1, 2 and 3)

Alternatives 2 and 3 are effective in the long-term. Alternative 2 provides a high degree of permanence because the residual contamination will be removed. Contaminated materials will remain at HAAF if Alternative 3 is used, but the monitoring and management of Alternative 3 will verify that restrictions and recommendations implemented during the design and construction protect the wetland as it develops and matures. Where remedial actions are necessary, Alternative 1 is not effective in the long term.

HWRP Issues (Alternatives 1 and 4)

Alternative 4 is effective in the long term and will provide permanence. Although contaminated materials will remain at HAAF if Alternative 4 is implemented, the monitoring and management of Alternative 4 will verify that restrictions and recommendations implemented during the design and construction protect the wetland as it develops and matures. Where remedial actions are necessary, Alternative 1 is not effective in the long term.

4. Reduction of Toxicity, Mobility, and Volume Through Treatment

None of the alternatives involve treatment to reduce toxicity, mobility, or volume of contaminants. Soils at HAAF have a high clay content, and treatment options for contaminated soil with a high clay content are not practical.

5. Short-Term Effectiveness

Army BRAC Sites (Alternatives 1, 2 and 3)

No short-term impacts are expected from Alternative 1. Alternative 2 potentially may have short-term impacts on the community, workers, and environment because it involves excavation, stockpiling, and transporting soil to an offsite disposal facility. Fugitive dusts can be created during this process, but will be controlled using water, as necessary. Risk of worker exposure can be mitigated by following safety protocols during excavation activities. Alternative 3 does not have any short-term impacts because the action proposed in this alternative is the establishment of performance criteria, not the actual placement of cover.

HWRP Issues (Alternatives 1 and 4)

No short-term impacts are expected from Alternative 1. Alternative 4 may have the potential for short-term impacts on the community, workers, and environment because it may involve excavation, grading, stockpiling, and transporting soil elsewhere onsite. Fugitive dusts can be created during this process, but will be controlled using water, as necessary. Risk of worker exposure can be mitigated by following safety protocols during construction activities.

6. Implementability

Army BRAC Sites (Alternatives 1, 2, and 3)

There are no obstacles associated with implementing Alternative 1. Alternative 2 includes a few obstacles because this alternative uses excavation to reduce contamination. Excavation is a well-established remedial action and activities can be completed safely. Both Alternatives 2 and 3 will need to be coordinated with the HWRP.

HWRP Issues (Alternatives 1 and 4)

There are no obstacles associated with implementing Alternative 1. Alternative 4 will require coordination with the Army BRAC program.

7. Cost

Army BRAC Sites (Alternatives 1, 2, and 3)

There are no costs for Alternative 1. Estimated project costs for Alternatives 2 and 3 are listed in Table 2.4-1 (which follows the text of this section). The cost analysis includes estimated expenditures required to complete the remediation in terms of both capital costs and annual operations and maintenance. Cost estimates are based on estimated excavation volumes in the ROD/RAP and are expressed in terms of 2003 dollars. The costs associated with Alternative 3 are estimated for anticipated long-term monitoring requirements.

HWRP Issues (Alternatives 1 and 4)

There are no costs for Alternative 1. Estimated project costs for Alternative 4 will accrue to the HWRP.

8. Regulatory Acceptance

RWQCB and DTSC hereby determine, based on the substantial evidence in the administrative record, that this ROD/RAP has been properly noticed, circulated for public review and comment, and approved in accordance with the requirements of Sections 25356.1 and 25356.1.5 of the Health and Safety Code Chapter 6.8 of Division 20, the Porter-Cologne Water Quality Control Act, and all other applicable State laws.

9. Community Acceptance

Community acceptance refers to the public's general response to the alternatives described in the draft ROD/RAP. The community will have the opportunity to comment in writing on the ROD/RAP during a 45-day comment period. There will also be an opportunity for the public to ask questions and make comments at a public meeting to be held during the 45-day comment period.

2.4.3 Comparative Analysis for Selected Alternatives

This section summarizes the basis for the selected alternative for each Inboard Area site requiring remedial action. A comparative analysis summary of the alternatives is provided in Table 2.4-1.

For each site, the selected alternative satisfies the statutory requirements of CERCLA Sections 121 and 120(a)(4), as amended by SARA, and California Health and Safety Code Section 25356.1.5, which requires response actions approved by the RWQCB and/or DTSC under Chapter 6.8 of Division 20 of the California Health and Safety Code, in that the following mandates are attained:

- The selected remedy protects human health and the environment.
- The selected remedy complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action.
- The selected remedy is cost-effective.

Alternatives selected below for the Inboard Area sites include Alternative 2, Excavation and Offsite Disposal; and Alternative 3, Manage In-Situ, with Monitoring and Maintenance, for Army BRAC sites. Section 2.4.4 presents the total volume of soil to be excavated or covered under Alternatives 2 and 3.

2.4.3.1 Former Sewage Treatment Plant

Alternative 3, Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites, is the preferred alternative for the FSTP. This alternative is effective and implementable. It establishes performance criteria requiring 3 feet of cover. This alternative would meet RAOs by preventing exposure of future wetland receptors to existing site soils. Implementation of

monitoring and adaptive management plans will achieve and maintain the 3 feet of stable cover. The FSTP is located in an area where it is currently expected that cover can be achieved and there is no expected scour or channel cut in the future wetland. The preferred alternative may change to Alternative 2 in the future if the final HWRP design and geomorphic and scour analysis determine that the performance criteria cannot be achieved and maintained.

The area recommended for this alternative is shown in Figure 2.4-1. The area over which the performance criteria would be achieved and maintained was established to address the estimated extent of soil containing DDTs at concentrations above action goals. A summary of the minimum, maximum, and average values for DDTs remaining at the FSTP are shown below. This information was considered in the process of selecting Alternative 3 and establishing cover boundaries for the FSTP.

Minimum, Maximum, and Average Values for DDTs — Former Sewage Treatment Plant

Contaminant	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
DDTs, total	65	0.00390	0.500	0.0113	0.03

Units are in ppm.

Alternative 1 was not selected because it would not meet RAOs and would not protect human health and the environment. Alternative 2 would be an effective and implementable alternative. Alternative 3 was selected over Alternative 2 because this site is in an area where no scour or channel cuts are currently expected in the future wetland and Alternative 3 is more cost-effective.

2.4.3.2 Building 26

Alternative 3, Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites, is the preferred alternative for Building 26. This alternative is effective and implementable. This alternative establishes performance criteria requiring 3 feet of cover. This alternative would meet RAOs by preventing exposure of future wetland receptors to existing site soils. Implementation of monitoring and adaptive management plans will achieve and maintain the 3 feet of stable cover. Building 26 is located in an area where it is currently expected that cover can be achieved and there is no expected scour or channel cut in the future wetland. The preferred alternative may change in the future to Alternative 2 should the final HWRP design and geomorphic and scour analysis determine that the performance criteria cannot be achieved and maintained.

The area recommended for this alternative is shown in Figure 2.4-1. The area over which the performance criteria would be achieved and maintained was established to address the estimated extent of soil containing COCs at concentrations above action goals. A summary of the minimum, maximum, and average values for COCs remaining at Building 26 are shown below. This information was considered in the process of selecting Alternative 3 and establishing cover boundaries for Building 26.

Minimum, Maximum, and Average Values for COCs — Building 26

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
TPH-diesel	11	25	770	122	144

Units are in ppm

Alternative 1 was not selected because it would not meet RAOs and would not protect human health and the environment. Alternative 2 would be an effective and implementable alternative. Alternative 3 was selected over Alternative 2 because this site is in an area where no scour or channel cuts are currently expected in the future wetland and Alternative 3 is more cost-effective.

2.4.3.3 Building 35/39

Alternative 2, Excavation and Offsite Disposal, is the preferred alternative for the area at Building 35/39 where DDT was detected above 1 ppm near the outfall pipeline. This alternative is preferred because of the level of DDT detected. The Excavation and Offsite Disposal alternative would remove soil containing DDTs at concentrations above the 1 ppm action goal. After excavation, Alternative 3 would be implemented for any soils containing DDTs greater than the 0.03 ppm action goal. The excavated area would be backfilled as necessary for safety.

Alternative 3, Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites, is the preferred alternative for Building 35/39 for the area where DDT concentrations are below 1 ppm, but are above the action goal of 0.03 ppm. This alternative is effective and implementable. This alternative establishes performance criteria requiring 3 feet of cover.

This alternative selection would meet RAOs by removing contamination or preventing exposure of future wetland receptors to existing site soils. Implementation of monitoring and adaptive management plans will achieve and maintain the 3 feet of stable cover. Building 35/39 is located in an area where it is expected that cover can be achieved and there is currently no expected scour or channel cut in the future wetland. The preferred alternative may change in the future to Alternative 2 should the final HWRP design and geomorphic and scour analysis determine that the performance criteria cannot be achieved and maintained.

The area recommended for this alternative is shown in Figure 2.4-1. Excavation and cover boundaries were established to address soil containing COCs at concentrations above action goals. A summary of the minimum, maximum, and average values for COCs remaining at Building 35/39 are shown below. This information was considered in the process of selecting Alternative 2 and 3, and establishing excavation and cover boundaries for Building 35/39.

Minimum, Maximum, and Average Values for COCs — Building 35/39 Area

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
DDTs, total	21	0.0017	3.93	0.188	0.03/1.0

Units are in ppm

Alternative 1 was not selected because it would not meet RAOs and would not protect human health and the environment.

2.4.3.4 Building 41

Alternative 2, Excavation and Offsite Disposal, is the preferred alternative for Building 41. Alternative 2 is effective and implementable. This alternative is preferred because Building 41 is located in an area where there is expected scour or channel cut in the future wetland. The Excavation and Offsite Disposal alternative would remove soil containing COCs at concentrations above action goals. The excavated area would be backfilled with clean onsite soil as necessary for safety. The alternative would meet RAOs by removing COCs above action goals.

The area recommended for this alternative is shown in Figure 2.4-2. Excavation boundaries were established to address soil containing COCs at concentrations above action goals. A summary of the minimum, maximum, and average values for COCs remaining at Building 41 are shown below. This information was considered in the process of selecting Alternative 2 and establishing excavation boundaries for Building 41.

Minimum, Maximum, and Average Values for COCs — Building 41 Area

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
PAHs, total	29	0.0600	101	3.63	4.022
TPH-diesel	38	20.0	3,100	242	144

Units are in ppm.

In February 2002, during remediation activities at Building 41, contaminated soil was removed and disposed of offsite. The analytical results of the soil-removal activities are provided in the *Final Construction Report Building 41 Demolition and Soil Removal, Spoils Pile F Removal, and Revetments 6 and 7 Removal* (IT, 2003). After reviewing the analytical data from that event, it was agreed that some additional samples are needed to determine whether the actions are complete. For this reason, Alternative 2 is chosen in this document as though the remediation activities have not yet taken place.

Alternative 1 was not selected because it would not meet RAOs and would not protect human health and the environment. Alternative 2 was selected over Alternative 3 because this site is in an area where scour or channel cuts are currently expected in the future wetland. The effectiveness of cover and monitoring in Alternative 3 is a potential concern in scour or channel cut areas.

2.4.3.5 Building 82/87/92/94 Area and Building 86 (Including Storm Drains)

Alternative 3, Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites, is the preferred alternative for Building 82/87/92/94 and Building 86 (including storm drains). This alternative is effective and implementable. This alternative establishes performance criteria requiring 3 feet of cover. This alternative would meet RAOs by preventing exposure of future wetland receptors to existing site soils. Implementation of monitoring and adaptive management plans will achieve and maintain the 3 feet of stable cover. These buildings and associated storm drains are located in an area where it is

currently expected that cover can be achieved and there is no expected scour or channel cut in the future wetland. The preferred alternative may change in the future to Alternative 2 if the final HWRP design and geomorphic and scour analysis determine that the performance criteria cannot be achieved and maintained.

The area recommended for this alternative is shown in Figure 2.1-1. The area over which the performance criteria would be achieved and maintained was established to address the estimated extent of soil containing COCs at concentrations above action goals. The minimum, maximum, and average values for COCs remaining at Building 82/87/92/94 and Building 86 are summarized below. This information was considered in the process of selecting Alternative 3 and establishing cover boundaries for Building 82/87/92/94 and Building 86 and associated storm drains.

Minimum, Maximum, and Average Values for COCs — Building 82/87/92/94

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Barium	24	45.5	814	188	190
Beryllium	24	0.652	3.02	1.13	1.03

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Building 86

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Beryllium	48	0.74	6.44	0.837	1.03
Cadmium	48	0.99	68.0	23.5	1.2
Chromium	45	11.2	710	88.6	112
PAHs, total	79	0.058	414	5.26	4.022

Units are in ppm.

Alternative 1 was not selected because it would not meet RAOs and would not protect human health and the environment. Alternative 2 would also be an effective and implementable alternative. Alternative 3 was selected over Alternative 2 because this site is in an area where no scour or channel cuts are currently expected in the future wetland and Alternative 3 is more cost-effective.

2.4.3.6 Perimeter Drainage Ditch

Alternative 2, Excavation and Offsite Disposal, is the preferred alternative for the northern portion of the PDD (the unlined PDD) where DDT has been detected above 1 ppm. This alternative is preferred because of the level of DDT detected in this area. The Excavation and Offsite Disposal alternative would remove soil containing DDTs at concentrations above the 1 ppm action goal. After excavation, Alternative 3 would be implemented for any soils containing DDTs greater than the 0.03 action goal. The excavated area would be backfilled as necessary for safety.

Alternative 3, Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites, is the preferred alternative for the southern portion of the PDD (the lined PDD). This alternative is effective and implementable. This alternative establishes performance criteria requiring 3 feet of cover. This alternative would meet RAOs by preventing exposure of future wetland receptors to existing site soils. Implementation of monitoring and adaptive management plans will achieve and maintain the 3 feet of stable cover. This portion of the PDD is located in an area where it is currently expected that cover can be achieved and there is no expected scour or channel cut in the future wetland. The preferred alternative may change in the future to Alternative 2 should the final HWRP design and geomorphic and scour analysis determine that the performance criteria cannot be achieved and maintained.

The areas recommended for this alternative are shown in Figure 2.1-1. The area over which the performance criteria would be achieved and maintained was established to address the estimated extent of soil containing COCs at concentrations above action goals. A summary of the minimum, maximum, and average values for COCs remaining at the PDD are shown below. This information was considered in the process of selecting Alternative 3 and establishing cover and excavation boundaries for the PDD.

Minimum, Maximum, and Average Values for COCs — Perimeter Drainage Ditch

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Beryllium	43	0.68	3.50	1.41	1.03
DDTs, total	49	0.0038	9.5	0.47	0.03

Units are in ppm.

Alternative 1 was not selected because it would not meet RAOs and would not protect human health and the environment.

2.4.3.7 PDD Spoils Piles

PDD Spoils Piles A, B, C, D, G, I, J, K, L, M, and N (Alternative 3)

Alternative 3, Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites, is the preferred alternative for the former locations of PDD Spoils Piles A, B, C, D, G, I, J, K, L, M, and N. This alternative is effective and implementable. This alternative establishes performance criteria requiring 3 feet of cover. This alternative would meet RAOs by preventing exposure of future wetland receptors to existing site soils. Implementation of monitoring and adaptive management plans will achieve and maintain the 3 feet of stable cover. These piles are located in areas where it is currently expected that cover can be achieved and there is no expected scour or channel cut in the future wetland. The preferred alternative may change in the future to Alternative 2 if the final HWRP design and geomorphic and scour analysis determine that the performance criteria cannot be achieved and maintained.

The area recommended for this alternative is shown in Figure 2.4-1. The area over which the performance criteria would be achieved and maintained was established to address soil containing COCs at concentrations above action goals. A summary of the minimum, maximum, and average values for COCs remaining at PDD Spoils Piles A, B, C, D, G, I, J, K, L, M, and N are shown below. This information was considered in the process of selecting Alternative 3 and establishing cover boundaries for Spoils Piles A, B, C, D, G, I, J, K, L, M, and N.

Minimum, Maximum, and Average Values for COCs — Perimeter Drainage Ditch Spoils Pile A

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Beryllium	1	1.90	1.90	1.90	1.03
Zinc	1	164	164	164	158
DDTs, total	1	0.283	0.283	0.283	0.03

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Perimeter Drainage Ditch Spoils Pile B

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Cadmium	5	1.30	5.20	2.18	1.2
Copper	5	26.7	185	71.9	68.1
Mercury	5	0.100	1.70	0.446	0.43
Silver	5	1.03	1.07	0.650	1.0
Zinc	5	103	368	251	158

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Perimeter Drainage Ditch Spoils Pile C

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
DDTs, total	1	0.0390	0.0390	0.0390	0.03

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Preliminary Drainage Ditch Spoils Pile D

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
DDTs, total	1	0.129	0.129	0.129	0.03

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Preliminary Drainage Ditch Spoils Pile G

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
DDTs, total	1	0.211	0.211	0.211	0.03

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Perimeter Drainage Ditch Spoils Pile I

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Beryllium	2	0.710	1.10	0.910	1.03
DDTs, total	1	0.053	0.053	0.053	0.03

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Perimeter Drainage Ditch Spoils Pile J

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
DDTs, total	1	0.117	0.117	0.117	0.03

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Perimeter Drainage Ditch Spoils Pile K

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
DDTs, total	1	0.178	0.178	0.178	0.03

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Perimeter Drainage Ditch Spoils Pile L

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Barium	1	222	222	222	190
Cobalt	1	56.6	56.6	56.6	27.6
Lead	1	77.4	77.4	77.4	46.7
Zinc	1	164	164	164	158

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Perimeter Drainage Ditch Spoils Pile M

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
DDTs, total	2	0.0219	0.0380	0.03	0.03

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Perimeter Drainage Ditch Spoils Pile N

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Lead	3	16.5	57.5	34.1	46.7
DDTs, total	3	0.0357	0.0880	0.0702	0.03

Units are in ppm.

Alternative 1 was not selected because it would not meet RAOs and would not protect human health and the environment. Alternative 2 would also be an effective and implementable alternative. Alternative 3 was selected over Alternative 2 because these sites are located in areas where no scour or channel cuts are currently expected in the future wetland and Alternative 3 is more cost-effective.

PDD Spoils Pile F (Alternative 2)

Alternative 2, Excavation and Offsite Disposal, is the preferred alternative for the former location of PDD Spoils Pile F. This alternative is preferred because PDD Spoils Pile F is located in an area where there is expected scour or channel cut in the future wetland. The Excavation and Offsite Disposal alternative would remove soil containing COCs at concentrations above action goals. The excavated area would be backfilled as necessary for safety. The alternative would meet RAOs by removing COCs above action goals.

The area recommended for this alternative is shown in Figure 2.4-1. Excavation boundaries were established to address soil containing COCs at concentrations above action goals. A summary of the minimum, maximum, and average values for COCs remaining at PDD Spoils Pile F are shown below. This information was considered in the process of selecting Alternative 2 and establishing excavation boundaries.

Minimum, Maximum, and Average Values for COCs — PDD Spoils Pile F

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Arsenic	3	3.70	29.6	15.8	16.7
Beryllium	3	0.590	4.80	2.20	1.03
Cobalt	3	6.50	61.1	27.8	27.6
Lead	3	16.5	109	75.8	46.7
Manganese	3	564	1,870	1,070	943
Nickel	3	23.9	198	102	114
Zinc	3	43.9	224	122	158
PAHs, total	2	7.32	41.15	24.2	4.022
DDTs, total	3	0.0211	0.641	0.349	0.03

Units are in ppm.

In February 2002, during remediation activities at Spoils Pile F, contaminated soil was removed and disposed of offsite. The analytical results of the soil removal activities are provided in the *Final Construction Report Building 41 Demolition and Soil Removal, Spoils Pile F*

Removal, and Revetments 6 and 7 Removal (IT, 2003). After reviewing the analytical data from that event, it was agreed that some additional samples are needed to determine if the actions are complete. For this reason, Alternative 2 is chosen in this document as though the remediation activities have not yet taken place.

Alternative 1 was not selected because it would not meet RAOs and would not protect human health and the environment. Alternative 2 was selected over Alternative 3 because this site is in an area where scour or channel cuts are expected in the future wetland. The effectiveness of cover and monitoring in Alternative 3 is a potential concern in scour or channel-cut areas.

2.4.3.8 Onshore Fuel Line

Alternative 3, Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites, is the preferred alternative for the ONSFL. This alternative is effective and implementable. This alternative establishes performance criteria requiring 3 feet of cover. This alternative would meet RAOs by preventing exposure of future wetland receptors to existing site soils. Implementation of monitoring and adaptive management plans will achieve and maintain the 3 feet of stable cover. The ONSFL is located in an area where it is currently expected that cover can be achieved and there is no expected scour or channel cut in the future wetland. The preferred alternative may change in the future to Alternative 2 if the final HWRP design and geomorphic and scour analysis determine that the performance criteria cannot be achieved and maintained.

The areas recommended for this alternative are shown in Figures 2.4-3 through 2.4-5. The area over which the performance criteria would be achieved and maintained was established to address the estimated extent of soil containing COCs at concentrations above action goals. A summary of the minimum, maximum, and average values for COCs remaining at the ONSFL segments are shown below. This information was considered in the process of selecting Alternative 3 and establishing cover boundaries for the ONSFL.

Onshore Fuel Line, 54-Inch

Minimum, Maximum, and Average Values for COCs — ONSFL, 54-inch

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
TPH-gasoline	39	43.0	220	29.5	12

Units are in ppm.

Onshore Fuel Line, Hangar Segment

Minimum, Maximum, and Average Values for COCs — ONSFL, Hangar Segment

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
TPH-gasoline	286	1.80	3,700	56.7	12
TPH-JP-4	301	25.0	1,100	19.9	12
PAHs, total	444	0.037	742	2.16	4.022

Units are in ppm.

Onshore Fuel Line, Northern Segment

Minimum, Maximum, and Average Values for COCs — ONSFL, Northern Segment

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
TPH-diesel	159	7.10	870	15.0	144
TPH-motor oil	74	94.0	910	66.8	144
TPH-gasoline	159	0.52	470	12.1	12

Units are in ppm.

Alternative 1 was not selected because it would not meet RAOs and would not protect human health and the environment. Alternative 2 would also be an effective and implementable alternative. Alternative 3 was selected over Alternative 2 because this site is in an area where no scour or channel cuts are currently expected in the future wetland and Alternative 3 is more cost-effective.

2.4.3.9 Revetment Areas**Revetment Areas 6 and 7 (Alternative 2)**

Alternative 2, Excavation and Offsite Disposal, is the preferred alternative for Revetment Areas 6 and 7. This alternative is preferred because the revetments are located in an area where there is expected scour or channel cut in the future wetland. The Excavation and Offsite Disposal alternative would remove soil containing COCs at concentrations above action goals. The excavated area would be backfilled as necessary for safety. The alternative would meet RAOs by removing COCs above action goals.

The area recommended for excavation is shown on Figure 2.4-1. Excavation boundaries were established to address soil containing COCs at concentrations above action goals. A summary of the minimum, maximum, and average values for COCs remaining at Revetments 6 and 7 are shown below. This information was considered in the process of selecting Alternative 2 and establishing excavation boundaries for Revetments 6 and 7.

Minimum, Maximum, and Average Values for COCs — Revetment 6

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
TPH-gasoline	7	920	920	920	12

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 7

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Lead	4	12.5	55.6	38.8	46.7
PAHs, total	3	3.061	7.87	5.41	4.022

Units are in ppm.

In February 2002, during remediation activities at Revetment 6, concrete and contaminated soil were removed and disposed of offsite. The analytical results of the Revetment 6 concrete pad and soil removal activities are provided in the *Final Construction Report Building 41 Demolition and Soil Removal, Spoils Pile F Removal, and Revetments 6 and 7 Removal* (IT, 2003). After reviewing the analytical data from that event, it was agreed that some additional samples are needed to determine if the actions are complete. For this reason, Alternative 2 is chosen in this document as though the remediation activities have not yet taken place.

Alternative 1 was not selected because it would not meet RAOs and would not protect human health and the environment. Alternative 2 was selected over Alternative 3 because this site is in an area where scour or channel cuts are expected in the future wetland. The effectiveness of cover and monitoring in Alternative 3 is a potential concern in scour or channel-cut areas.

Revetment Areas 1, 2, 3, 4, 11, 12, 13, 14, 16, 19, 21, 22, 23, 25, and 26, Historic Revetments, and Storm Drains (Alternative 3)

Alternative 3, Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites, is the preferred alternative for revetments 1, 2, 3, 4, 11, 12, 13, 14, 16, 19, 21, 22, 23, 25, and 26, historic revetments, and the storm drains in this area. This alternative is effective and implementable. This alternative establishes performance criteria requiring 3 feet of cover. This alternative would meet RAOs by preventing exposure of future wetland receptors to existing site soils. Implementation of monitoring and adaptive management plans will achieve and maintain the 3 feet of stable cover. These revetments are located in an area where it is currently expected that cover can be achieved and there is no expected scour or channel cut in the future wetland. The preferred alternative may change in the future to Alternative 2 should the final HWRP design and geomorphic and scour analysis determine that the performance criteria cannot be achieved and maintained.

The area recommended for this alternative is shown in Figure 2.4-1. The area over which the performance criteria would be achieved and maintained was established to address the estimated extent of soil containing COCs at concentrations above action goals. A summary of the minimum, maximum, and average values for COCs remaining at these revetments are shown below. This information was considered in the process of selecting Alternative 3 and establishing cover boundaries for these revetments.

Minimum, Maximum, and Average Values for COCs — Revetment 1

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Barium	4	94.7	233	139	190
Cadmium	4	0.0400	1.80	1.00	1.2
Lead	4	9.7	70.2	45.6	46.7
PAHs, total	3	0.483	5.86	1.79	4.022

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 2

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Cadmium	4	0.430	3.10	1.66	1.2
Lead	4	16.6	176	81.6	46.7

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 3

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Barium	1	479	479	479	190
Copper	1	88.4	88.4	88.4	68.1
Manganese	1	1,850	1,850	1,850	943

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 4

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Cadmium	4	0.350	2.90	1.34	1.2
Lead	4	12.8	79.7	32.8	46.7

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 11

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Copper	17	28.6	126	60.5	68.1

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 12

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Copper	16	21.5	218	65.9	68.1

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 13

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Cadmium	4	0.110	4.20	1.57	1.2
Lead	4	15.3	109	45.8	46.7
PAHs, total	3	0.178	6.74	3.26	4.022

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 14

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
TPH-diesel	1	160	160	160	144

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 16

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Barium	1	406	406	406	190

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 19

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Barium	4	53.6	403	143	190
Cadmium	4	0.440	1.70	1.15	1.2
Copper	4	33.9	82.4	46.7	68.1
Lead	4	10.0	84.5	41.8	46.7
PAHs, total	4	0.110	12.5	2.77	4.022
TPH-diesel	4	270	270	270	144
TPH-gasoline	4	580	580	580	12

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 21

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Copper	1	70.3	70.3	70.3	68.1
Vanadium	1	131	131	131	118
TPH-diesel	1	310	310	310	144
TPH-gasoline	1	230	230	230	12

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 22

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
TPH-diesel	1	880	880	880	144
TPH-gasoline	1	200	200	200	12

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 23

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Copper	15	20.0	141	57.2	68.1

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 25

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Barium	1	238	238	238	190
TPH-diesel	1	330	330	330	144

Units are in ppm.

Minimum, Maximum, and Average Values for COCs — Revetment 26

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Barium	1	379	379	379	190
Boron	1	58.3	58.3	58.3	36.9
Manganese	1	1,130	1,130	1,130	943
TPH-diesel	1	290	290	290	144
TPH-gasoline	1	60.0	60.0	60.0	12

Units are in ppm.

No analytical data are available for the historic revetments.

Alternative 1 was not selected because it would not meet RAOs and would not protect human health and the environment. Alternative 2 would be an effective and implementable alternative. Alternative 3 was selected over Alternative 2 because these sites are located in areas where no scour or channel cuts are currently expected in the future wetland and Alternative 3 is more cost-effective.

2.4.3.10 Inboard Area-Wide DDTs and PAHs Near the Runway

Alternative 4, Manage Onsite, with Monitoring and Maintenance, for Army Civil Works Issues, is the preferred alternative for Inboard Area-Wide DDTs and PAHs near the runway. This alternative establishes performance criteria requiring 3 feet of cover over all site soils containing residual DDTs and/or PAHs in excess of the action goals. The Army Civil Works Program shall ensure, through both construction and implementation of its plan for monitoring and adaptive management, that the HWRP will achieve and maintain the performance criteria of 3 feet of stable cover or its equivalent. This alternative would meet RAOs by preventing exposure of future wetland receptors to existing site soils. Implementation of monitoring and adaptive management plans will achieve and maintain the 3 feet of stable cover.

The area recommended for cover is shown on Figure 2.4-6. Cover boundaries were established to address soil containing COCs at concentrations above action goals. A summary of the minimum, maximum, and average values for COCs remaining at these areas are shown below. This information was considered in the process of selecting Alternative 4 and establishing cover boundaries for these areas.

Minimum, Maximum, and Average Values for Inboard Area-Wide DDTs and PAHs Near the Runway

COC	Number of Samples	Minimum Value	Maximum Value	Average Value	Action Goal
Total DDTs	23	0.0181	0.935	0.163	0.03
Total PAHs	15	0.036	54.9	7.59	4.02

Units are in ppm.

Alternative 1 was not selected because it would not meet RAOs and would not protect human health and the environment. No other alternatives were considered.

2.4.4 Estimated Total Excavation Volume

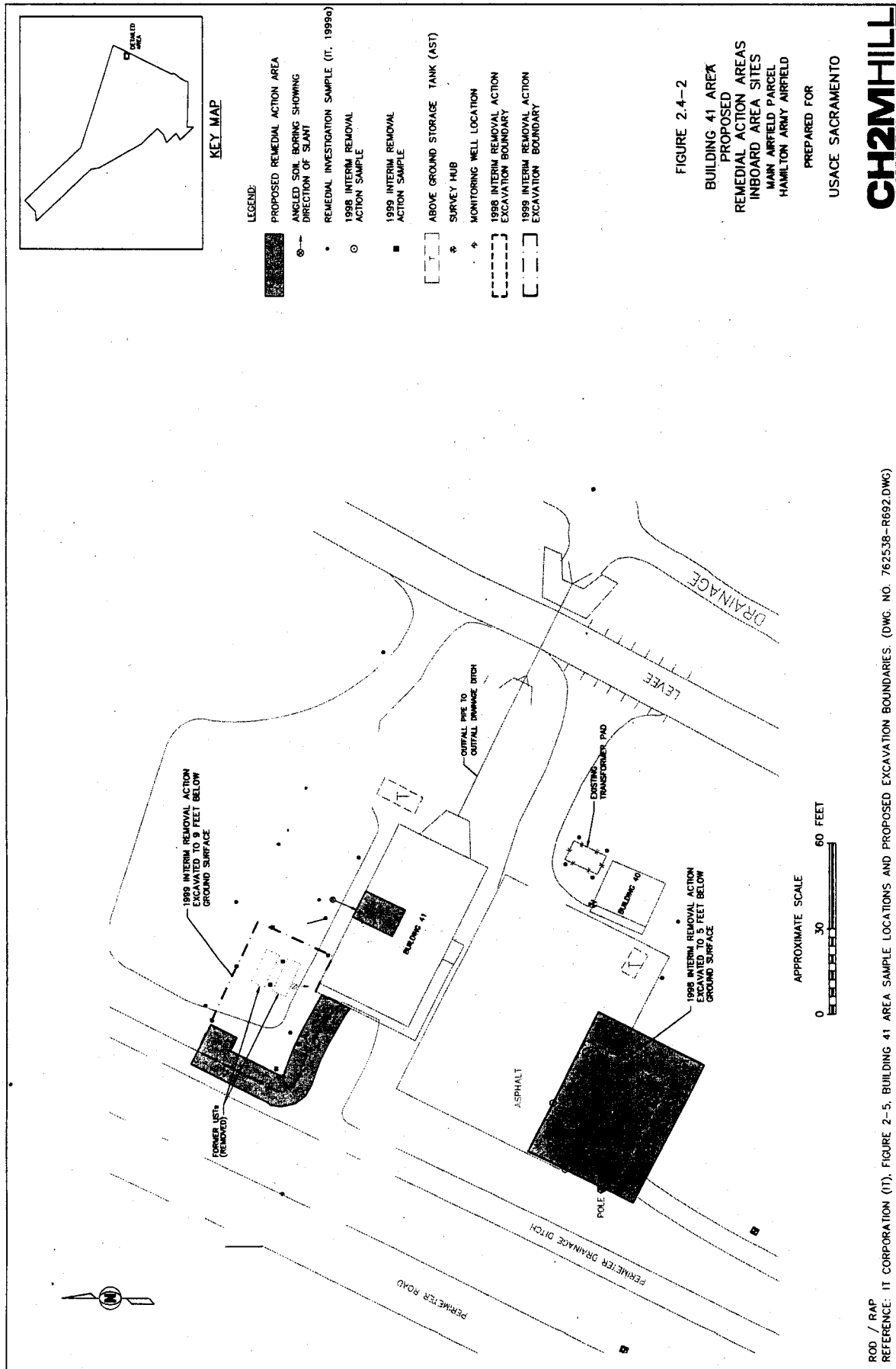
As previously discussed, actions to be taken under Alternatives 2 and 4 include excavating soil. This section summarizes the estimated total volume of soil that will be excavated for sites where Alternatives 2 and 4 were selected.

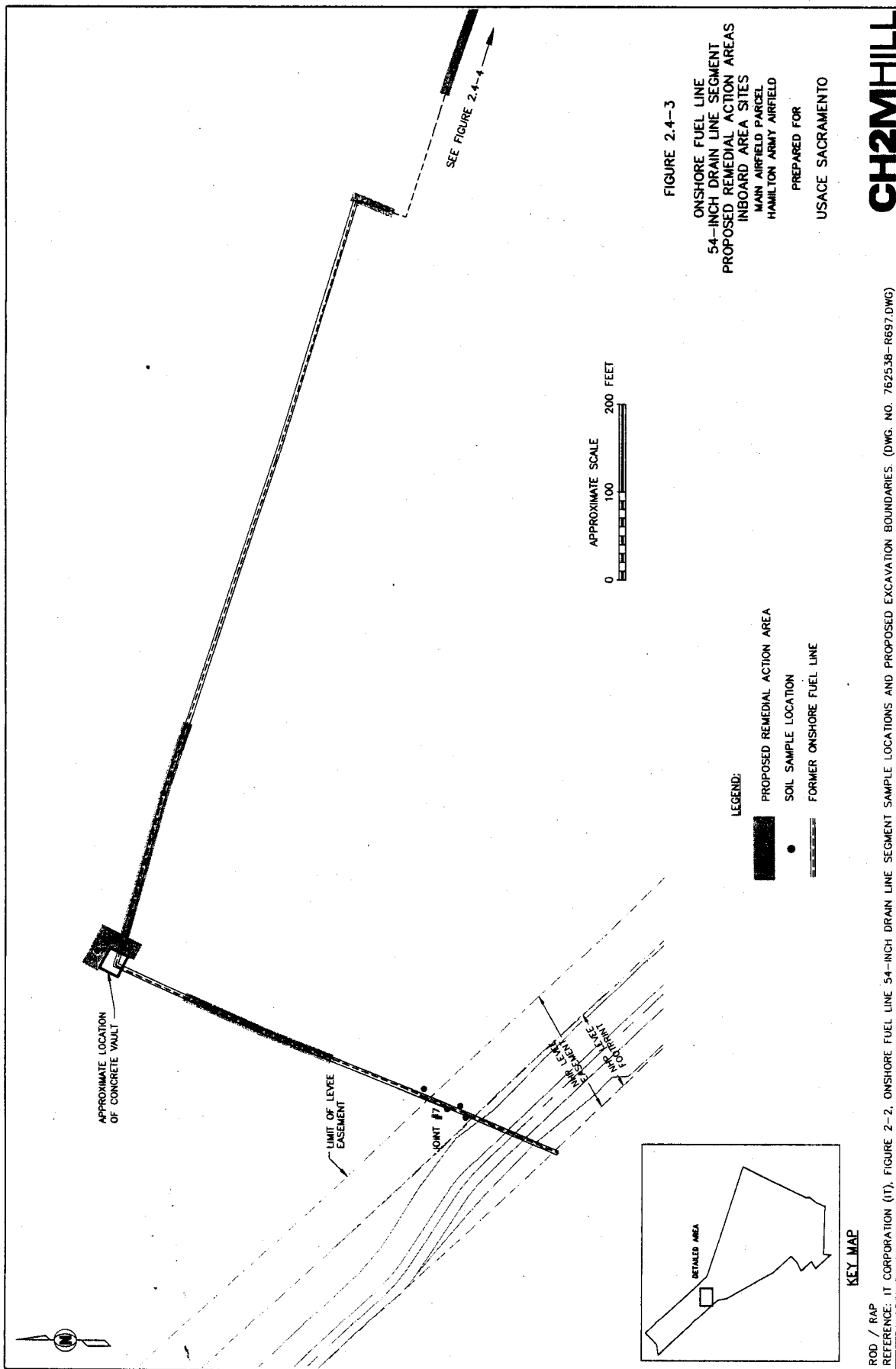
Alternative 2, Excavation and Offsite Disposal, was selected for a number of Inboard Area sites as shown in Table 2.4-1. The total estimated volume of soil that will be excavated under this alternative is 13,800 cubic yards. The final footprint of excavation activities will be determined as part of the remedial design and/or by confirmation sampling conducted during remedial activities.

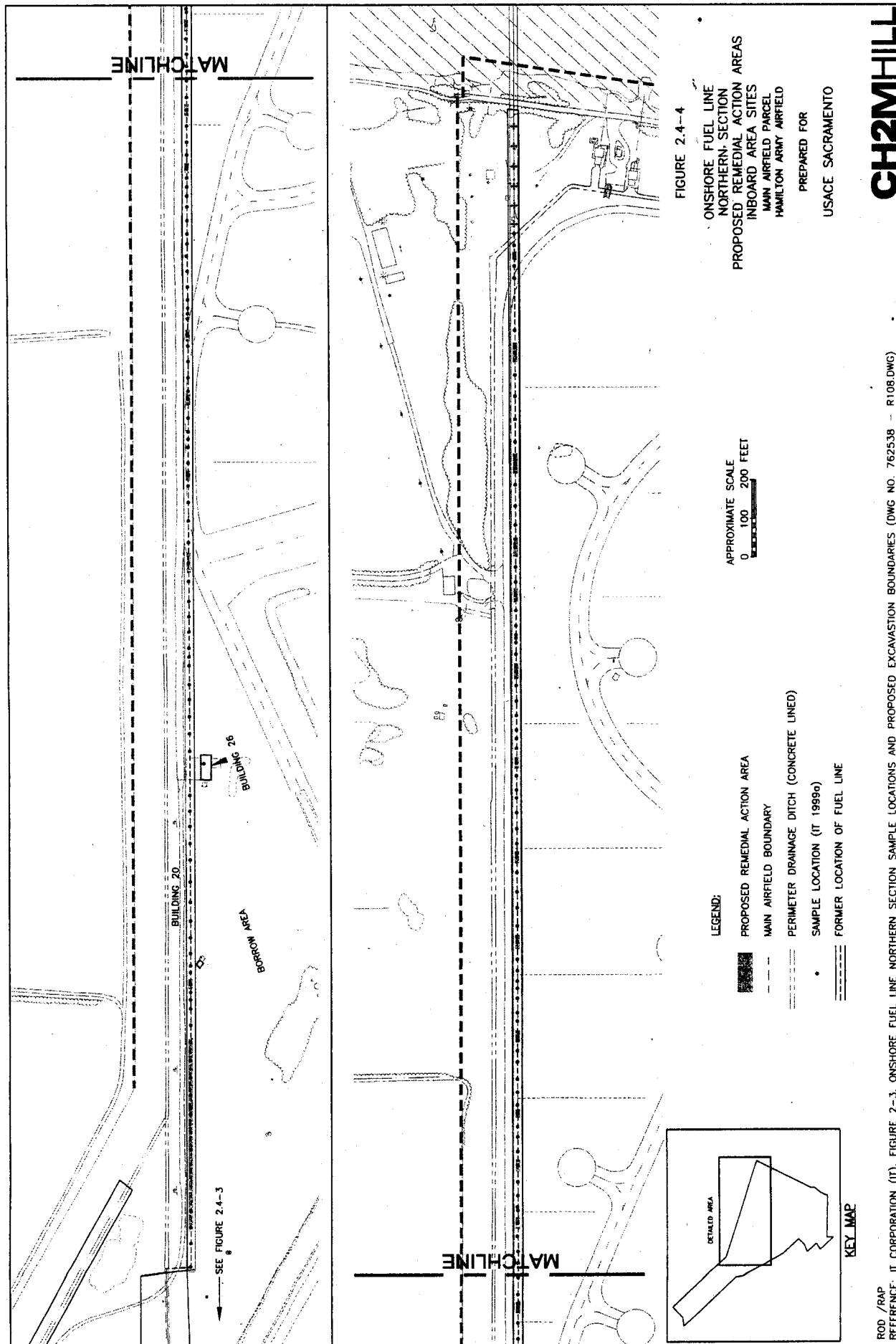
Alternative 4, Manage Onsite, with Monitoring and Maintenance, for Army Civil Works Issues, was selected for the Inboard Area-Wide DDTs and PAHs near the runway. The estimated maximum volume of soil to be excavated, moved, or managed elsewhere onsite under Alternative 4 is 871,000 cubic yards.

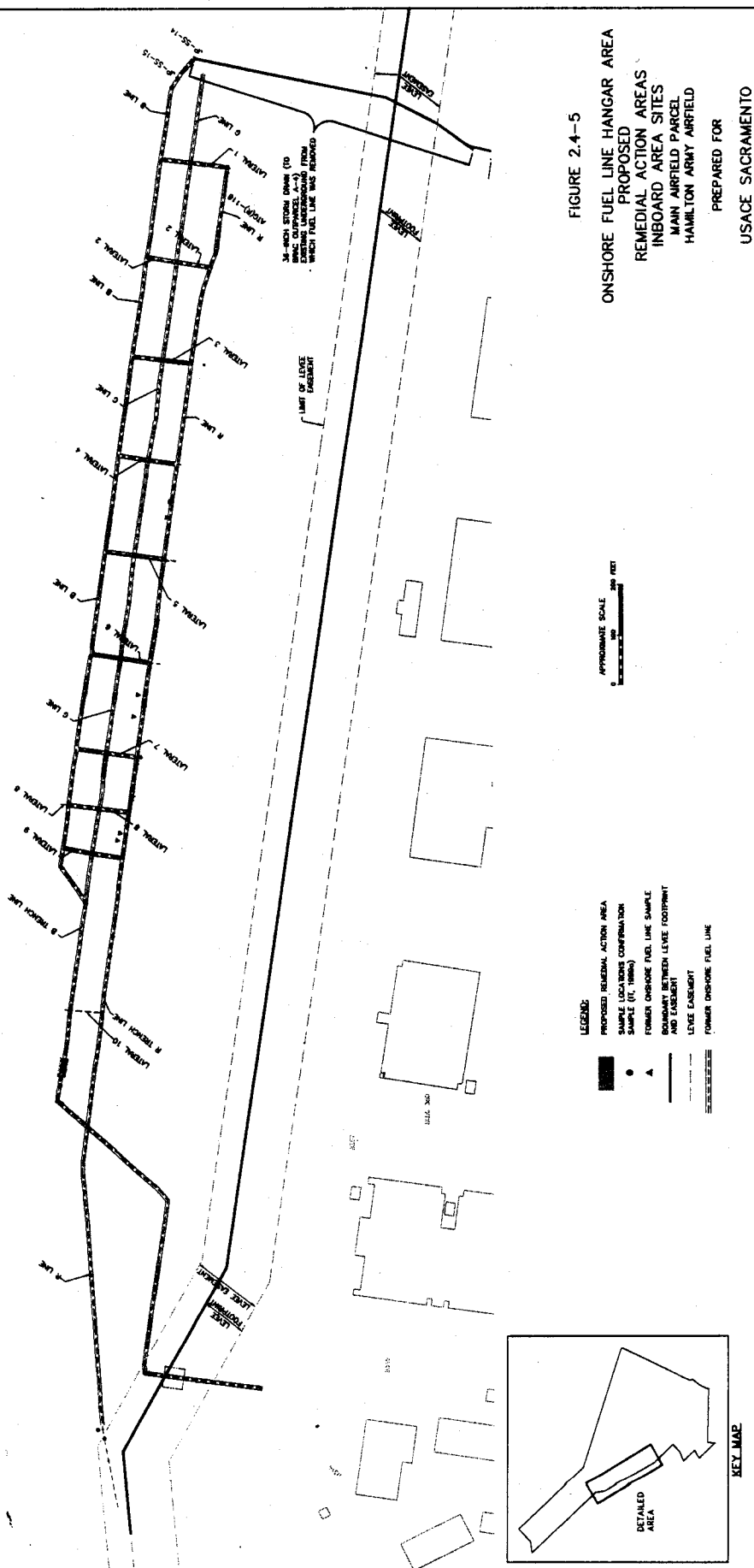
TABLE 2.4-1
Comparative Analysis Summary

Evaluation Criteria Rankings													
Site	Alternative	Overall Protection of Human Health and the Environment		Compliance with State and Federal Requirements		Long-Term Effectiveness and Permanence		Reduction of TMV Through Treatment	Cost	Short-Term Effectiveness	Implementability	Regulatory Agency Acceptance	Community Acceptance
		the Environment											
FSTP	1	NA	NA	NA	NA	NA	NA	NA	NA	High	High	Low	TBD
	2	High	High	High	Low	High	NA	NA	\$61,217	Medium	Medium	Medium	TBD
	3	High	High	Low	Low	Medium	NA	NA	\$10,000	High	High	High	TBD
Building 26	1	NA	NA	NA	NA	NA	NA	NA	NA	High	High	Low	TBD
	2	High	High	High	High	High	NA	NA	\$23,610	Medium	Medium	Medium	TBD
	3	High	High	Low	Low	Medium	NA	NA	\$10,000	High	High	High	TBD
Building 35/39 Area	1	NA	NA	NA	NA	NA	NA	NA	NA	High	High	Low	TBD
	2	High	High	High	High	High	NA	NA	\$17,384	Medium	Medium	High	TBD
	3	High	High	Low	Low	Medium	NA	NA	\$10,000	High	High	High	TBD
Building 41 Area	1	NA	NA	NA	NA	NA	NA	NA	NA	High	High	Low	TBD
	2	High	High	High	High	High	NA	NA	\$297,018	Medium	Medium	High	TBD
	3	High	High	Low	Low	Medium	NA	NA	\$10,000	High	High	Medium	TBD
Building 82/87/92/94 Area and Building 86	1	NA	NA	NA	NA	NA	NA	NA	NA	High	High	Low	TBD
	2	High	High	High	High	High	NA	NA	\$1,298,674	Medium	Medium	Medium	TBD
	3	High	High	Low	Low	Medium	NA	NA	\$10,000	High	High	High	TBD
Perimeter Drainage Ditch	1	NA	NA	NA	NA	NA	NA	NA	NA	High	High	Low	TBD
	2	High	High	High	High	High	NA	NA	\$4,502,006	Medium	Medium	High	TBD
	3	High	High	Low	Low	Medium	NA	NA	\$10,000	High	High	High	TBD
Perimeter Drainage Ditch Spoils Piles	1	NA	NA	NA	NA	NA	NA	NA	NA	High	High	Low	TBD
	2	High	High	High	High	High	NA	NA	Spoils Pile A—\$55,892 Spoils Pile B—\$123,374 Spoils Pile C—\$97,974 Spoils Pile D—\$60,244 Spoils Pile F—\$182,305 Spoils Pile G—\$68,213 Spoils Pile I—\$41,202 Spoils Pile J—\$16,915 Spoils Pile K—\$32,852 Spoils Pile L—\$9,811 Spoils Pile M—\$126,722 Spoils Pile N—\$72,078	Medium	Medium	High	TBD
	3	High	High	Low	Low	Medium	NA	NA	\$10,000 (per site)	High	High	High	TBD
Onshore Fuel Line	1	NA	NA	NA	NA	NA	NA	NA	NA	High	High	Low	TBD
	2	High	High	High	High	High	NA	NA	54-inch Line—\$625,306 Hangar Segment—\$701,748 Northern Segment—\$571,294	Medium	Medium	Medium	TBD
	3	High	High	Low	Low	Medium	NA	NA	\$10,000	High	High	High	TBD
Northwest Runway Area	1	NA	NA	NA	NA	NA	NA	NA	NA	High	High	High	TBD
	2	High	High	High	High	High	NA	NA	\$76,566	Medium	High	Medium	TBD
	3	High	High	Low	Low	High	NA	NA		High	High	High	TBD









ROD / RAP

ROD / RAP
REFERENCE: IT CORPORATION (IT), FIGURE 2-4, ONSHORE FUEL LINE HANGAR AREA SAMPLE LOCATIONS AND PROPOSED EXCAVATION BOUNDARIES. (DWG. NO. 762538-R109.DWG)

R109.dwg 21-May-2003 15:53:09

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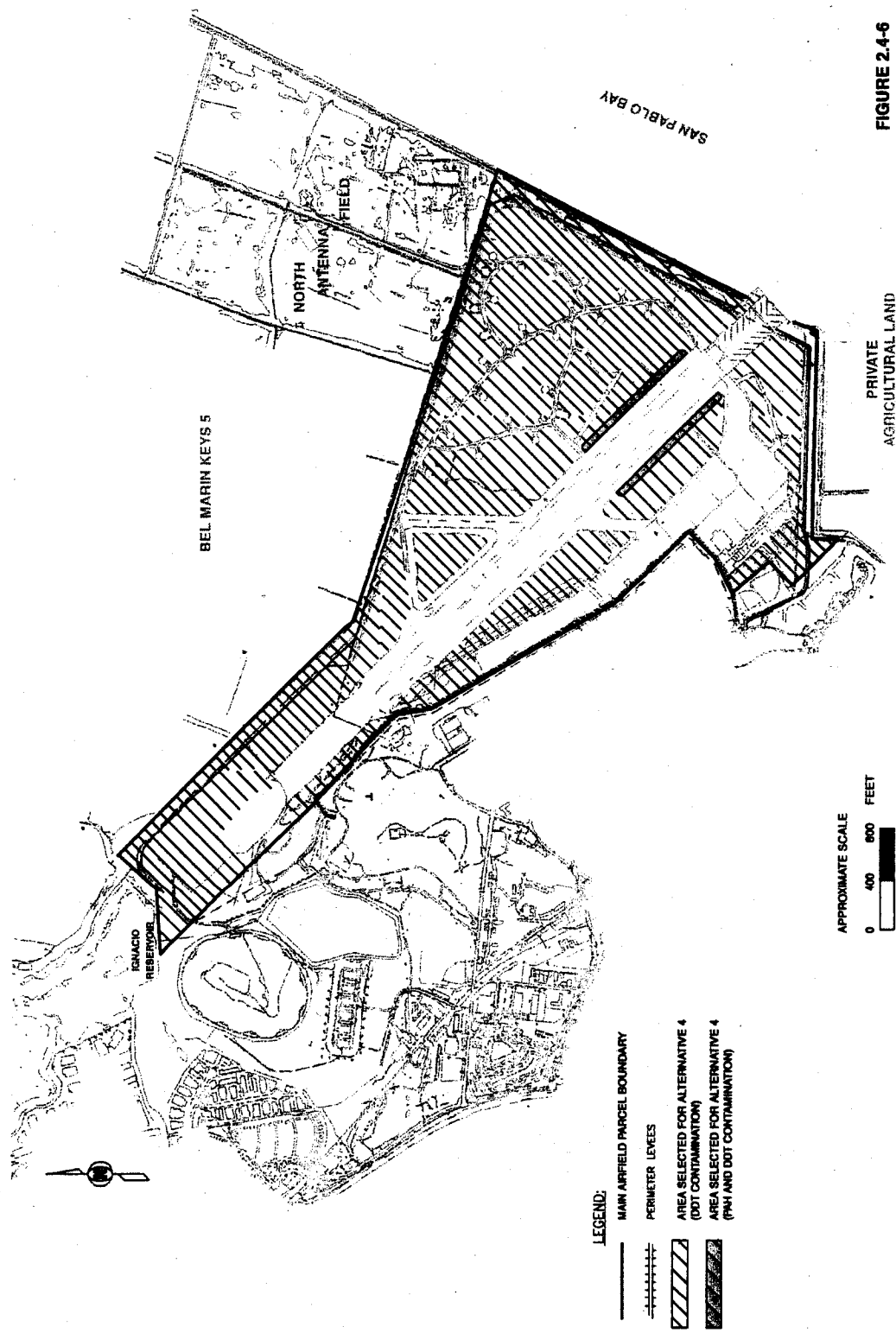


FIGURE 2.4-6
INBOARD AREA-WIDE DDT's
AND PAHs NEAR THE RUNWAY
PROPOSED REMEDIAL ACTION AREAS
 HAMILTON ARMY AIRFIELD

ROD/RAP Reference: IT Corporation Figure 1-3 Inboard Sites (DWG No. 782538-B860)

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